REMARKS

Claims 1-31 are currently pending. Claims 32-72 are withdrawn from consideration as drawn to nonelected inventions. Claims 1 and 24-29 are amended herein. Support for the amendments to claims 1 and 29 is found at page 7, lines 6-8. Support for the amendments to claims 24-28 is found at page 9, lines 34-36.

Additionally, the specification has been amended herein in this Amendment A. Support for the amendments to the specification can be found on page 17, lines 32-33 and original claim 9. Applicant respectfully requests reconsideration and allowance of all pending claims.

1. Rejection of claims 1-9, 15, 17-26, and 29-31 under 35 U.S.C. §103(a).

Claims 1-9, 15, 17-26, and 29-31 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Delmotte et al. (U.S. Patent No. 5,989,215).

Claim 1, as amended herein, is directed to a multilayered biocompatible structure comprising a biopolymer membrane and a biopolymer product in contact with the biopolymer membrane. The biopolymer membrane, in its substantially dry form, has a thickness equal to or less than about 75 microns, a solvent content less than about 5% by weight of the membrane, a radius of curvature of less than about 5 centimeters, a density greater than about 1 g/cm^3, and a maximum pore size in its hydrated form of about 20 microns.

Delmotte et al. disclose a medical device for delivering volumetric quantities of a first and a second biochemically reactive fluid. In one embodiment, the medical device delivers fibrin to a surface using the method comprising: (1) providing a liquid solution of fibrinogen; (2) providing a liquid solution of thrombin; (3) providing a spray unit in fluid communication with the fibrinogen and thrombin solutions, the spray unit being capable of separately atomizing the fibrinogen and the thrombin into an aerosol with at least one energy source of a liquid energy, a mechanical energy, a vibration energy, and an electric energy; (4) spraying the fibrinogen solution onto a surface with the spray unit; (5) spraying the thrombin solution separately from the fibrinogen onto the surface; and (6) mixing for the first time the fibrinogen with the thrombin on the surface to make a fibrin film. The fibrin film has a pore size of below about 20 microns

and a thickness in the wet state of at least 20 microns, preferably from about 20 to 2000 microns, and most preferably up to 5000 microns.[1]

Specifically, Delmotte et al. fail to disclose a biopolymer membrane that has a solvent content less than about 5% by weight of the membrane, a radius of curvature of less than about 5 centimeters, and a density greater than about 1 g/cm^3.

Apparently recognizing the shortcomings of the cited reference, the Office states that, although Delmotte et al. do not specifically disclose a biopolymer membrane with a radius of curvature of less than about 5 centimeters[2], one of ordinary skill in the art would have been motivated to make the film of Delmotte et al. with the radius of curvature required in the instant claims as, when making the product, one skilled in the art would make it in the correct shape to correspond to the shape of the body part that is being treated by use of the product, and if the shape of the body part to be treated was substantially flat, or had a radius of curvature of less than 5 centimeters, then the product would be made to fit this specification.

In order for the Office to show a *prima facie* case of obviousness, M.P.E.P. §2143 requires that the Office must meet three criteria: (1) the prior art reference must teach or suggest all of the claim limitations; (2) there must be some suggestion or motivation, either in the reference itself or in the knowledge generally available to one of ordinary skill in the art, to modify the reference, and (3) there must be some reasonable expectation of success. The Office has clearly failed to meet its burden under numbers (1) and/or (2) above, which require the Office to show each and every claim limitation and some motivation to modify the cited reference. The mere fact that a reference can be modified does not render the resultant modification obvious unless the prior art also suggests the desirability of the modification. Applicants assert that the reference does not contain all of the limitations of instant claim 1, nor is there motivation or suggestion to modify the reference.

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[1] U.S. Patent No. 5,989,215 at column 6, lines 5-8 and lines 35-38.

[2] As noted above, in addition to the radius of curvature, Delmotte et al. also fail to disclose a biopolymer membrane that has a solvent content less than about 5% by weight of the membrane and a density greater than about 1 g/cm^3.

As noted above, Delmotte et al. fail to teach or suggest a biopolymer membrane that has a solvent content less than about 5% by weight of the membrane, a radius of curvature of less than about 5 centimeters, and a density greater than about 1 g/cm^3 as required in claim 1. Specifically, no where is solvent content, radius of curvature, or density even mentioned in the Delmotte et al. reference.

Furthermore, there is no motivation or suggestion to modify the Delmotte et al. reference to arrive at each and every limitation of claim 1. As Delmotte et al. fail to disclose any solvent content, radius of curvature, or density, one skilled in the art would not have been motivated to modify the fibrin film of Delmotte et al. to reach a solvent content of less than about 5% by weight of the film, a radius of curvature of less than about 5 centimeters, and a density greater than about 1 g/cm^3 as required in the amended claim 1. Furthermore, Delmotte et al. fail to disclose or suggest the steps of adjusting the solvent content of the biopolymer membrane by rehydrating the membrane with solvent and compressing the biopolymer membrane as in the process to produce the biopolymer membrane of the present invention.[3] The effect of rehydration and compression can be seen in Example 1 of the present application, wherein a lyophilized product's residual moisture (solvent) content was 15% (page 22, line 31). However, the solvent content was less than 2% by weight and density was about 1.77 g/cm^3 after rehydration and compression (page 23, lines 4-5). As Delmotte et al. fail to suggest rehydrating or compressing the fibrin film, there is no motivation to modify the reference to obtain a biopolymer membrane having a solvent content less than about 5% by weight of the membrane and a density greater than about 1 g/cm^3 as required of the biopolymer membrane of amended claim 1.

With all due respect, it appears that the Office has used hindsight analysis and reconstruction when modifying the Delmotte et al. reference. The Federal Circuit has repeatedly cautioned against hindsight analysis and held that such practice is improper.[4] One skilled in the

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[3] *See* present specification at page 14, lines 23-37.

[4] Grain Processing Corp. v. American-Maize-Products, Co., 840 F.2d 902, 904 (Fed. Cir. 1988). M.P.E.P. §2142 provides that in order to reach a proper determination under 35 U.S.C. §103(a), the Examiner must step backward in time and into the shoes worn by the hypothetical "person of ordinary skill in the art" when the invention was unknown and just before it was made.

art, looking to the Delmotte et al. reference, simply would not have been motivated to use a biopolymer membrane having a solvent content of less than about 5% by weight of the membrane, a radius of curvature of less than about 5 centimeters, and a density greater than about 1 g/cm^3.

As the Delmotte et al. reference fails to teach or suggest each and every limitation of claim 1, and further, as there is no suggestion or motivation to modify the Delmotte et al. reference to arrive at each and every limitation of claim 1, claim 1 cannot be said to be obvious in view of the cited reference.

Claims 2-9, 15, and 17-26 directly or indirectly depend from claim 1. As such, claims 2-9, 15, and 17-26 are patentable for the same reasons as claim 1 set forth above as well as for the additional elements they require.

Claim 29 is similar to claim 1 and further requires the multilayered biocompatible structure to comprise a first blend of a biomaterial and thrombin defining a biopolymer membrane and a second blend of a biomaterial and thrombin defining a biopolymer product. Claim 29 is patentable for the same reasons as claim 1 set forth above, as well as for the additional elements it requires. Claims 30-31 depend directly on claim 29. As such, claims 30-31 are patentable for the same reasons as claim 29, as well as for the additional elements they require.

2. Rejection of claims 27-28 under 35 U.S.C. §103(a).

Claims 27-28 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Delmotte et al. (U.S. Patent No. 5,989,215) in view of Sierra et al.

Claims 27-28 depend directly on claim 1, which is discussed above. Claim 1 is patentable for the reasons set forth above. In particular, the Delmotte et al. reference fails to teach or suggest a biopolymer membrane having a solvent content of less than about 5% by

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Knowledge of Applicant's disclosure must be put aside in reaching this determination, yet kept in mind in order to determine the "differences." The tendency to resort to "hindsight" based upon Applicant's disclosure is often difficult to avoid due to the very nature of the examination process.

weight of the membrane, a radius of curvature of less than about 5 centimeters, and a density greater than about 1 g/cm^3.

Sierra et al. fail to overcome the above shortcomings. Specifically, Sierra et al. disclose a general review of fibrin sealants, the mechanical properties of the fibrin sealants, and clinical applications of the fibrin sealants. In discussing the mechanical properties of the fibrin sealants, Sierra et al. suggest that the structure of fibrin gel to be used as a sealant may be altered by changing any one of several factors. In one embodiment, Sierra et al. disclose that a decrease in gelation time or an increase in ionic strength or pH can cause the formation of small diameter fibrils and pores in the gel structure.[5] As with Delmotte et al., the Sierra et al. reference fails to disclose a biopolymer membrane having a solvent content of less than about 5% by weight of the membrane, a radius of curvature of less than about 5 centimeters, and a density greater than about 1 g/cm^3.

Based on the foregoing, Sierra et al. fail to remedy the shortcomings of the Delmotte et al. reference. As such, the addition of Sierra et al. does not make claims 27-28 obvious in view of the Delmotte et al. reference.

3. Rejection of Claims 10-11 under 35 U.S.C. §103(a)

Claims 10-11 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Delmotte et al. (U.S. Patent No. 5,989,215) in view of Lee et al. (U.S. Patent No. 4,344,190).

Claims 10-11 depend indirectly on claim 1, which is discussed above. Claim 1 is patentable for the reasons set forth above. In particular, the Delmotte et al. reference fails to teach or suggest a biopolymer membrane having a solvent content of less than about 5% by weight of the membrane, a radius of curvature of less than about 5 centimeters, and a density greater than about 1 g/cm^3.

Lee et al. fail to overcome the above shortcomings. Specifically, Lee et al. disclose a push-fit plug for the medullary canal of a bone, having a portion with sides adapted to be a push fit in the medullary canal. The plug is made of a biodegradable material. Specifically, the plug of Lee et al. is manufactured from a biodegradable material comprising stabilized ox fibrin

mixed with 35% glycerol as a plasticizer. As with Delmotte et al., the Lee et al. reference fails to disclose a biopolymer membrane having a solvent content of less than about 5% by weight of the membrane, a radius of curvature of less than about 5 centimeters, and a density greater than about 1 g/cm^3.

Based on the foregoing, Lee et al. fail to remedy the shortcomings of the Delmotte et al. reference. As such, the addition of Lee et al. does not make claims 10-11 obvious in view of the Delmotte et al. reference.

4. Rejection of Claim 14 under 35 U.S.C. §103(a)

Claim 14 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Delmotte et al. (U.S. Patent No. 5,989,215) in view of Redl et al. (U.S. Patent No. 4,631,055).

Claim 14 depends indirectly on claim 1, which is discussed above. Claim 1 is patentable for the reasons set forth above. In particular, the Delmotte et al. reference fails to teach or suggest a biopolymer membrane having a solvent content of less than about 5% by weight of the membrane, a radius of curvature of less than about 5 centimeters, and a density greater than about 1 g/cm^3.

Redl et al. fail to overcome the above shortcomings. Specifically, Redl et al. disclose fibrin seals incorporating antibiotics such as gentamycin, neomycin, and Polymyxin E.[6] Specifically, Redl et al. investigate the properties of the fibrin seal-antibiotic mixtures with regard to their potential application in bone surgery. As with Delmotte et al., the Redl et al. reference fails to disclose a biopolymer membrane having a solvent content of less than about 5% by weight of the membrane, a radius of curvature of less than about 5 centimeters, and a density greater than about 1 g/cm^3.

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[5] Sierra et al. at page 325.

[6] It is noted that the Office cites to U.S. 4,631,055 (Redl et al.) for disclosing a fibrin seal in combination with antibiotics. Applicants, point out however, that U.S. 4,631,055 fail to disclose any antibiotics. Specifically, U.S. 4,631,055 is directed to an arrangement for applying a tissue adhesive, wherein the tissue adhesive can be made of fibrin. Pursuant to the telephone conference between Examiner Silverman and Applicant's attorney, Applicant responds to the instant rejection in view of Redl et al., "In Vitro Properties of Mixtures of Fibrin Seal and Antibiotics", Biomaterials, January 1983, Vol. 4, pp. 29-32.

Based on the foregoing, Redl et al. fail to remedy the shortcomings of the Delmotte et al. reference. As such, the addition of Redl et al. does not make claim 14 obvious in view of the Delmotte et al. reference.

5. Rejection of Claim 12 under 35 U.S.C. §103(a)

Claim 12 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Delmotte et al. (U.S. Patent No. 5,989,215) in view of Herrin et al. (U.S. Patent No. 3,919,414).

Claim 12 depends indirectly on claim 1, which is discussed above. Claim 1 is patentable for the reasons set forth above. In particular, the Delmotte et al. reference fails to teach or suggest a biopolymer membrane having a solvent content of less than about 5% by weight of the membrane, a radius of curvature of less than about 5 centimeters, and a density greater than about 1 g/cm^3.

Herrin et al. fail to overcome the above shortcomings. Specifically, Herrin et al. disclose compositions involving the combination of urokinase and certain 1-guanidinoalkyl-ω-sulfate esters. These compositions are used to accelerate the lysis of blood clots. As with Delmotte et al., the Herrin et al. reference fails to disclose a biopolymer membrane having a solvent content of less than about 5% by weight of the membrane, a radius of curvature of less than about 5 centimeters, and a density greater than about 1 g/cm^3.

Based on the foregoing, Herrin et al. fail to remedy the shortcomings of the Delmotte et al. reference. As such, the addition of Herrin et al. does not make claim 12 obvious in view of the Delmotte et al. reference.

6. Rejection of Claim 13 under 35 U.S.C. §103(a)

Claim 13 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Delmotte et al. (U.S. Patent No. 5,989,215) in view of Reich (U.S. Patent No. 5,674,488).

Claim 13 depends indirectly on claim 1, which is discussed above. Claim 1 is patentable for the reasons set forth above. In particular, the Delmotte et al. reference fails to teach or suggest a biopolymer membrane having a solvent content of less than about 5% by weight of the

membrane, a radius of curvature of less than about 5 centimeters, and a density greater than about 1 g/cm^3.

Reich fails to overcome the above shortcomings. Specifically, Reich discloses a method for lowering blood cholesterol levels by administering to a human suffering from hypercholesterolemia an effective amount of a delta 5 hydrogenating enzyme. As with Delmotte et al., the Reich reference fails to disclose a biopolymer membrane having a solvent content of less than about 5% by weight of the membrane, a radius of curvature of less than about 5 centimeters, and a density greater than about 1 g/cm^3.

Based on the foregoing, Reich fails to remedy the shortcomings of the Delmotte et al. reference. As such, the addition of Reich does not make claim 13 obvious in view of the Delmotte et al. reference.

7. Rejection of Claim 16 under 35 U.S.C. §103(a)

Claim 16 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Delmotte et al. (U.S. Patent No. 5,989,215) in view of Antanavich et al. (U.S. Patent No. 5,585,007).

Claim 16 depends indirectly on claim 1, which is discussed above. Claim 1 is patentable for the reasons set forth above. In particular, the Delmotte et al. reference fails to teach or suggest a biopolymer membrane having a solvent content of less than about 5% by weight of the membrane, a radius of curvature of less than about 5 centimeters, and a density greater than about 1 g/cm^3.

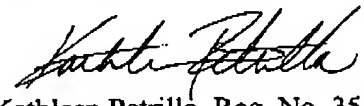
Antanavich et al. fail to overcome the above shortcomings. Specifically, Antanavich et al. disclose a device with a disposable cartridge for preparing tissue sealant. The tissue sealant is made by mixing a platelet-rich plasma concentrate with a solution of calcium and thrombin. In one embodiment, the platelet-rich plasma concentrate can comprise 5 to 400 mg/ml of fibrinogen. Once prepared, the tissue sealant is immediately applied to a wound. As with Delmotte et al., the Antanavich et al. reference fails to disclose a biopolymer membrane having a solvent content of less than about 5% by weight of the membrane, a radius of curvature of less than about 5 centimeters, and a density greater than about 1 g/cm^3.

Based on the foregoing, Antanavich et al. fail to remedy the shortcomings of the Delmotte et al. reference. As such, the addition of Antanavich et al. does not make claim 16 obvious in view of the Delmotte et al. reference.

CONCLUSION

In view of the above, Applicant respectfully requests favorable reconsideration and allowance of all pending claims. The Commissioner is hereby authorized to charge the fee of 120.00 for a one-month extension and any additional fees in connection with this Amendment A to Deposit Account Number 19-1345 in the name of Senniger Powers.

Respectfully submitted,



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